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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,632	06/13/2002	Kolja Vogel	VOGE3001/JEK	1392
23364	7590	10/18/2005	EXAMINER	
BACON & THOMAS, PLLC 625 SLATERS LANE FOURTH FLOOR ALEXANDRIA, VA 22314			HOFFMAN, BRANDON S	
			ART UNIT	PAPER NUMBER
			2136	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/049,632

Applicant(s)

VOGEL ET AL.

Examiner

Brandon S. Hoffman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 1-19 and 26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6-13-02</u> .   | 6) <input type="checkbox"/> Other: ____                                     |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

### ***Specification***

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

#### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

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(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The specification is objected to because the description of the claims is inaccurate. It appears the claims are numbered in a different order than described in the specification. For example, claim 19 calls for a public-key method, whereas the specification describes claim 19 as digitizing the biometric data several times.

### ***Claim Objections***

4. Claims 1-19 and 26 are objected to because of the following informalities:

- Claim 1 has two limitations referred to with the letter C.
- Claims 2-19 depend from claim 1 and therefore inherit its deficiencies.
- Claim 26 appears to be dependent upon claim 20 instead of claim 2.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 12 and 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 12 recites the limitation "the separation." There is insufficient antecedent basis for this limitation in the claim.

8. Claim 19 recites the limitation "the secret data." There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 20-26 are rejected under 35 U.S.C. 101 based on the theory that the claims are directed to neither "processes" nor "machines"; but rather embrace or overlap two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of inventions in the alternative *only*.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-3, 5-7, 10-21, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (U.S. Patent Pub. No. 2002/0124176 A1) in view of Vafai et al. (U.S. Patent No. 6,279,133).

Regarding claim 1, Epstein teaches a method for protecting data having an authentication phase comprising the following steps:

- Providing a biometric feature (fig. 4, ref. num 510);
- Digitizing the biometric feature to create digitized biometric authentication feature data (fig. 4, ref. num 520);
- Decrypting an encrypted code word on the basis of the digitized biometric authentication feature data (fig. 4, ref. num 540); and
- Recovering secret data by means of a decryption of the code word on the basis of the digitized biometric authentication feature data (fig. 4, ref. num 540).

Epstein does not teach recovering on the basis of a coding-theory method with a correction capacity, the correction capacity being freely selectable.

Vafai et al. teaches recovering on the basis of a coding-theory method with a correction capacity, the correction capacity being freely selectable (fig. 4 and col. 10, lines 36-49).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine recovering data on the basis of a coding-theory method, as taught by Vafai et al., with the method of Epstein. It would have been obvious for such modifications because fault-tolerantly coding data is widely in use for correcting data from disk drives and other storage (see col. 10, lines 36-49 of Vafai et al.). Correct data is needed to compare to a biometric sample.

Regarding claim 2, Epstein as modified by Vafai et al. teaches having an initialization phase comprising:

- After providing a biometric feature, digitizing the biometric feature to create digitized biometric feature data (see fig. 4, ref. num 510 and 520 of Epstein);
- Providing secret data (see fig. 2, ref. num 200 of Epstein);
- Encrypting on the basis of the digitized biometric feature data and a fault tolerantly coding the secret data (see fig. 2, ref. num 230 and 240 of Epstein and fig. 4 and col. 10, lines 36-49 of Vafai et al.).

Regarding claims 3 and 21, Epstein as modified by Vafai et al. teaches including using the consecutive steps:

- Fault-tolerantly coding the secret data to create a code word (see fig. 4 and col. 10, lines 36-49 of Vafai et al.);
- Encrypting the code word on the basis of the digitized biometric feature data to create an encrypted code word (see fig. 4, ref. num 560 of Epstein).

Regarding claim 5, Epstein as modified by Vafai et al. teaches including the step of creating initial correction data to describe the space of allowed code words (see col. 9, lines 32-41 of Vafai et al.).

Regarding claim 6, Epstein as modified by Vafai et al. teaches including the step of providing initialization correction data on the basis of the digitized biometric feature data (see col. 9, lines 32-41 of Vafai et al.).

Regarding claim 7, Epstein as modified by Vafai et al. teaches including the steps of:

- Creating authentication correction data on the basis of the digitized biometric authentication feature data (see fig. 4, ref. num 510 of Epstein and col. 9, lines 32-41 of Vafai et al.);
- Recovering the digitized biometric feature data on the basis of the authentication and initial correction data (see fig. 4, ref. num 540 of Epstein);
- Decrypting encrypted secret data on the basis of the recovered digitized biometric feature data (see fig. 4, ref. num 540 of Epstein).

Regarding claim 10, Epstein as modified by Vafai et al. teaches including using user-specific initial correction data and/or user-specific fault-tolerant coding (see fig. 4 and col. 10, lines 36-49 of Vafai et al.).



Regarding claims 11, 12, 17, and 25, Epstein as modified by Vafai et al. teaches wherein the handwritten signature is broken down into a public and a secret part and the secret part is a proper subset of the dynamic information of the signature, and the separation is effected with the aid of empirical inquiries (see fig. 3, ref. num 460 of Epstein, the key pair is created to be separated – one to the access device, one to the token).

Regarding claims 13 and 23, Epstein as modified by Vafai et al. teaches wherein a hash value is created from the digitized biometric feature data with the aid of a hash function (see fig. 3, ref. num 420 of Epstein).

Regarding claims 14 and 24, Epstein as modified by Vafai et al. teaches wherein a hash value is created from the digitized biometric authentication feature data with the aid of a hash function (see fig. 3, ref. num 420 of Epstein).

Regarding claim 15, Epstein as modified by Vafai et al. teaches wherein the biometric feature is a behavioral biometric (see paragraph 0004 of Epstein).

Regarding claims 16 and 26, Epstein as modified by Vafai et al. teaches wherein the biometric feature consists of a handwritten signature (see paragraph 0004 of Epstein).

Regarding claim 18, Epstein as modified by Vafai et al. teaches wherein the providing and/or digitizing of the biometric feature is effected several times (see paragraph 0026 of Epstein).

Regarding claim 19, Epstein as modified by Vafai et al. teaches wherein the secret data are generated with a public-key method (see fig. 3, ref. num 460 of Epstein).

Regarding claim 20, Epstein teaches an apparatus comprising:

- Digitizing apparatus arranged to digitize a biometric feature to thereby create digitized biometric feature data (fig. 4, ref. num 510 and 520);
- A secret data generator comprising (fig. 2, ref. num 200); and
- Encrypting and decrypting apparatus arranged to encrypt and decrypt the fault-tolerantly coded secret data with the aid of the digitized biometric feature data (fig. 2, ref. num 230 and 240).

Epstein does not teach fault-tolerantly coding/decoding the secret data.

Vafai et al. teaches fault-tolerantly coding and decoding the secret data (fig. 4 and col. 10, lines 36-49).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine fault-tolerantly coding the secret data, as taught by

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Vafai et al., with the apparatus of Epstein. It would have been obvious for such modifications because fault-tolerantly coding data is widely in use for correcting data from disk drives and other storage (see col. 10, lines 36-49 of Vafai et al.). Correct data is needed to compare to a biometric sample.

Claims 4, 8, 9, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein (USPN 2002/0124176 A1) in view of Vafai et al. (USPN '133), and further in view of Camp, Jr. et al. (U.S. Patent No. 6,075,987).

Regarding claim 4, Epstein as modified by Vafai et al. teaches all the limitations of claims 1-3, above. However, Epstein as modified by Vafai et al. does not teach wherein the code word is generated by a generating matrix.

Camp, Jr. et al. teaches wherein the code word is generated by a generating matrix (col. 9, lines 9-23).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine using a matrix for generating a code word, as taught by Camp, Jr. et al., with the method of Epstein/Vafai et al. It would have been obvious for such modifications because a generating matrix doesn't add any parity bits to the end of the plain text word to make them code words.

Regarding claims 8, 9, and 22, Epstein as modified by Vafai et al. teaches all the limitations of claims 1 and 7, above. However, Epstein as modified by Vafai et al. does not teach wherein the initial correction data are created by calculation of the digitized biometric feature data modulo  $n$ , and the authentication correction data are created by calculation of the authentication feature data modulo  $n$ .

Camp, Jr. et al. teaches wherein the initial correction data are created by calculation of the digitized biometric feature data modulo  $n$ , and the authentication correction data are created by calculation of the authentication feature data modulo  $n$  (col. 3, lines 31-43).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine creating data by modulo  $n$ , as taught by Camp, Jr. et al., with the method of Epstein/Vafai et al. It would have been obvious for such modifications because modulo arithmetic makes it significantly hard to recreate the data without prior knowledge of other information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon Hoffman whose telephone number is 571-272-3863. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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